

HELMINTHOLOGICAL ABSTRACTS

incorporating
BIBLIOGRAPHY OF HELMINTHOLOGY
For the Year 1945.



IMPERIAL BUREAU OF AGRICULTURAL PARASITOLOGY
(HELMINTHOLOGY)

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FOR THE YEAR 1945.

Vol. XIV, Part I.

1—Agricultural Gazette of New South Wales.

- a. ANON, 1945.—“Sterilization of seed bed soil.” 56 (2), 71-73.
- b. ANON, 1945.—“Control of black scour worm in sheep. Substitutes for nicotine sulphate.” 56 (3), 137, 141.

(1a) Soil can be sterilized by heat and by chemicals. Heat can be applied by baking, steaming, hot water, or surface burning. Chemicals in use are (i) formalin 1 in 50 of water is applied at the rate of $\frac{1}{2}$ to $1\frac{1}{2}$ gallons per square foot, and the soil is then covered for 12 hours. (ii) Carbon bisulphide $\frac{1}{4}$ to $\frac{1}{2}$ oz. poured into holes spaced 4 in a square yard. The fumes are poisonous and explosive near a naked flame. (iii) Chloropicrin $\frac{1}{4}$ th to $\frac{3}{4}$ th oz. poured in holes 1 foot apart and 4 to 5 inches deep. The fumes are irritant. R.T.L.

(1b) Nicotine sulphate is likely to be in very short supply in New South Wales in 1945, and the use of other drugs for the treatment of trichostrongylosis in sheep is suggested. Phenothiazine, at a dosage of 0.8 oz. for sheep, 0.64 oz. for young sheep, and 0.4 oz. for lambs 4 to 8 months old, is efficient but rather expensive. A 50:50 mixture of tetrachlorethylene and liquid paraffin is recommended at the following dosage: grown sheep, 15 c.c.; sheep 12 to 18 months old, 12 c.c.; 8 to 12 months old, 8 c.c.; 4 to 8 months, 6 c.c.; lambs under 4 months, 4 c.c. The efficacy of tetrachlorethylene depends on its being swallowed into the 4th stomach: this is effected by preliminary administration of a copper sulphate solution. A.E.F.

2—American Journal of Diseases of Children.

- a. EINHORN, N. H., MILLER, J. F. & WHITTIER, L., 1945.—“Ascariasis: clinical survey of one hundred and twenty-five cases of infection with *Ascaris lumbricoides* in children.” 69 (4), 237-246.

(2a) This survey of 125 cases of *Ascaris lumbricoides* infection in children of 11 months to 12 years of age includes a study of symptoms in which it is shown that malnutrition is a frequent and important condition; the results of blood examinations and of treatment with various drugs; a report on autopsies of 4 patients, in 2 of which death was due to complications resulting from *Ascaris* infection. J.J.C.B.

3—American Journal of Hygiene.

- a. CAUSEY, O. R., DEANE, M.P., DA COSTA, O. & DEANE, L. M., 1945.—“Studies on the incidence and transmission of filaria, *Wuchereria bancrofti*, in Belem, Brazil.” 41 (2), 143-149.
- b. REID, W. M., 1945.—“The relationship between glycogen depletion in the nematode *Ascaridia galli* (Schränk) and elimination of the parasite by the host.” 41 (2), 150-155.

(3a) In the city of Belem in the State of Pará, Brazil, 10.8% of 5,000 persons examined for microfilariae of *Wuchereria bancrofti* were positive. Elephantiasis occurred in 1.3%. The youngest individual with microfilariae was 2 years old. The chief vector is *Culex fatigans*: 11.6% of these were infected, and *Anopheles darlingi* and *A. aquasalis*, although present in small numbers, were found naturally infected. They were infected experimentally and infections were also induced in *A. oswaldoi*, *A. triannulatus* and *A. albitarsis*. R.T.L.

(3b) Reid shows that expulsion of *Ascaridia galli* from chickens depends upon the glycogen content of the parasite. Starvation of the host, which leads to the use of reserve glycogen by the parasite, is always followed by loss of worms. Males seem to be more sensitive than females to minor changes in the diet of the host and are more readily expelled. P.A.C.

4—American Journal of Tropical Medicine.

- a. BERCOVITZ, Z. T., SHWACHMAN, H. & RODRIGUEZ-MOLINA, R., 1945.—“The blood picture in asymptomatic *Schistosoma mansoni* and other intestinal parasitic infections.” 25 (1), 41–45.
- b. HARRELL, G. T. & HORNE, S. F., 1945.—“Trichinella skin tests in tuberculosis sanatoriums, hospitals for mental diseases, and general hospitals. A comparison of the results in tuberculous and non-tuberculous patients.” 25 (1), 51–58.
- c. BROWN, H. W. & WILLIAMS, R. W., 1945.—“A method for counting the microfilariae of *Litomosoides carinii* of the cotton rat.” 25 (1), 67–69.
- d. VAN DER SAR, A. & HARTZ, H., 1945.—“The syndrome, tropical eosinophilia and microfilaria.” 25 (2), 83–96.
- e. DAMMIN, G. J. & WELLER, T. H., 1945.—“Heterophile agglutinins and cold autohemagglutinins in schistosomiasis, filariasis, malaria, and leprosy.” 25 (2), 97–102.
- f. BRADY, F. J., LAWTON, A. H., COWIE, D. B., ANDREWS, H. L., NESS, A. T. & OGDEN, G. E., 1945.—“Localization of trivalent radio-active antimony following intravenous administration to dogs infected with *Dirofilaria immitis*.” 25 (2), 103–107.
- g. GERMAN, W. McK., 1945.—“Observations on the microfilaria of *Onchocerca volvulus* with silver stains.” 25 (2), 129–136.
- h. BELL, JR., S. D. & BROWN, H. W., 1945.—“Studies on the microfilarial periodicity of *Litomosoides carinii*, filariid parasite of the cotton rat.” 25 (2), 137–140.

(4a) The blood picture in 147 individuals with various intestinal helminth infestations, who yet showed no clinical symptoms, varied very little from the normal. Of 17 patients with *Schistosoma mansoni* alone, 5 showed leucocytosis and 6 showed eosinophilia. The same divergences occurred when the patients also harboured other infestations, the greatest deviations occurring among patients with *S. mansoni*, hookworm and *Trichuris trichiura* together. Examinations included actual and differential white cell counts, number of erythrocytes and estimation of haemoglobin.

P.A.C.

(4b) Harrell & Horne report that in North Carolina *Trichinella* antigen gave positive skin tests in 6.9% of 422 patients in general hospitals, in 18.3% of 674 patients in tuberculosis sanatoria and 18.4% of 825 patients in psychiatric hospitals. Of the non-tuberculous institutional patients 17.2% of 912 gave positive skin tests. The authors discuss the possibility of increased sensitivity to *Trichinella* infection and therefore to its antigen in tuberculous patients. It is difficult to explain the incidence (2.8% of 105 diaphragms) previously found at autopsy, and the incidence of positive skin tests (17.7% of 1,586 patients), when the latter technique gives decreasing numbers of positives with increasing age and the former the reverse.

M.R.Y.

(4c) Brown & Williams describe a technique for the counting of microfilariae in blood, which reduces the actual counting to one fifth. They spread the blood evenly by means of a fine wire over a square measuring 0.9 cm. Larvae are counted in every fifth microscope field. This method is sufficiently accurate unless the count drops to 50 per slide when it becomes advantageous to count all the larvae.

P.A.C.

(4e) Dammin & Weller demonstrate that heterophile agglutinins are developed at certain stages in the course of infestation with *Schistosoma* and *Filaria* species. High titres were never obtained. It has not yet been shown that the presence of these agglutinins is of any clinical significance.

P.A.C.

(4f) Dogs naturally infected with *Dirofilaria immitis* were injected intravenously with tartar emetic, sodium antimonyl xylitol and an aqueous suspension of antimony trioxide, each prepared from radio-active antimony. After autopsy 36 hours later, quantitative estimations of the antimony present in the organs showed that the liver contained the largest amount. Thyroid and parathyroid tissues contained the next largest amount, and the adult *Dirofilaria* ranked third in antimony content. Concentration of antimony in dermal and lymphatic tissues was of very low degree, but it is thought that of other compounds under trial, one may possibly be found which will occur in greater concentration in these tissues and thus will offer more promise in the treatment, for example, of the filariases of *Wuchereria* spp. and *Onchocerca volvulus*.

J.J.C.B.

(4g) A staining technique is described which is claimed to facilitate the demonstration of microfilariae in tissues and to reveal morphological details not seen by ordinary methods. In sections of nodules of *Onchocerca volvulus* stained by this technique, microfilariae appear to be annularly striated and are said to vary in length from 200 to 1,000 μ . It is suggested that microfilariae leave the nodule by the perivascular tissue spaces and not through the capillaries. It is thought that invasion of the capillaries is resisted by reaction and thrombosis which may cause the destruction of the microfilariae. The paper is illustrated by 8 photomicrographs.

J.J.C.B.

(4h) Bell & Brown demonstrate the presence of a sheath in the microfilaria of *Litomosoides carinii* and figure this in a photomicrograph. Experiments show that this species does not exhibit microfilarial periodicity of any kind.

J.J.C.B.

5—American Journal of Veterinary Research.

- a. MAYHEW, R. L., 1945.—“Studies on bovine gastrointestinal parasites VIII; effects of a low plane of nutrition on immunity to the stomach worm *Haemonchus contortus*.” 6 (18), 21-27.

(5a) Mayhew was unable to break down immunity to *Haemonchus contortus* in calves by reducing the nutritional value of the diet.

P.A.C.

6—Annales de Parasitologie Humaine et Comparée.

- a. COUTELEN, F., 1945.—“Une anomalie nouvelle du cénure sériel.” (1944-1945), 20 (1/2), 1-5.
 b. DOLLFUS, R. P. & DESPORTES, C., 1945.—“Sur le genre *Rictularia* Froelich 1802 (Nématodes, Spiruroidea).” (1944-1945), 20 (1/2), 6-34.
 c. DUVOIR, M. & BRUMPT, L. C., 1945.—“Le traitement des polyglobulies par Pankylostomose provoquée. (A propos de cinq cas).” (1944-1945), 20 (1/2), 35-42.
 d. BRUMPT, E., 1945.—“Curieux mode d'enkystement d'une cercaire (*Xiphidiocercaria exocystis* n.sp.) de *Bithymia tentaculata*.” (1944-1945), 20 (1/2), 94-96.

(6a) Coutelen describes several abnormalities in a proliferating *Coenurus serialis*. One scolex had as many as 12 suckers and the neck following it was 12-sided.

P.A.C.

(6b) *Rictularia* is one of the 4 genera which form the subfamily Rictulariinae in the Thelaziidae. The characters of the 30 named species and of a number of species inquirendae are tabulated. Their hosts and geographical distribution are listed. Descriptions are given of specimens collected at Richelieu (Indre-et-Loire) from *Apodemus sylvaticus* and *Sciurus vulgaris*. The type species *R. cristata* is so insufficiently known that it is treated as sp. inq. For *R. disparilis* Irwin Smith, 1922 the genus *Pseudorictularia* is proposed. The paper gives a full bibliography.

R.T.L.

(6c) Duvoir & Brumpt report on a series of cases of polycythaemia treated by induced ancylostomiasis. They conclude that this method compares favourably with other treatments. An infection with 500 larvae is recommended, and the technique employed is fully described.

A.E.F.

(6d) Brumpt found *Xiphidiocercaria exocystis* n.sp. emerging in small numbers at irregular intervals from spheroidal sporocysts (only 100 to 150 μ) in *Bithymia tentaculata* from Bois de Boulogne and from Richelieu. The active cercariae quickly sink and show a strong attraction for *Chironomus* larvae, and within a few minutes the tail is shed and a hemispherical cyst formed on the cuticle. The metacercariae soon penetrate the cuticle below the cyst and after a day or two they are all found in the posterior region of the perivisceral cavity, where they double their volume in a week; they do not enter the nymph but remain in the cast larval skin. Cercariae would not encyst on larvae of *Chloeopsis*, *Corethra*, various culicines or libellulids.

N.G.S.

7—Annals of Applied Biology.

- a. ELLENBY, C., 1945.—“The influence of crucifers and mustard oil on the emergence of larvae of the potato-root eelworm, *Heterodera rostochiensis* Wollenweber.” 32 (1), 67-70.
 b. STANILAND, L. N., 1945.—“The occurrence of *Anguillulina dipsaci* (Kühn) on weed hosts, including new host records in fields of oats affected by ‘rulp-root’.” 32 (2), 171-173.

(7a) Ellenby exposed potato-root eelworm cysts to mixtures of root excretions from potatoes and from seedlings of white mustard, black mustard, turnip, rape, cress, brussels sprouts and lettuce. He found the hatching of larvae much reduced in potato root excretion in which black mustard seedlings had been immersed, but on subsequent exposure to root excretion from potatoes alone, the larvae emerged in normal numbers. The same effect was produced to a slight degree when root excretions of white mustard and of cress (*Lepidium sativum*) were added to the potato root excretion. In a second series of experiments cysts were soaked in solutions of allyl isothiocyanate (the mustard oil of black mustard seed) at dilutions of 1/2,000, 1/20,000 and 1/1,000,000 made up in potato root excretion. No hatching occurred in the highest concentration and in the middle one the total hatch was reduced, even after the cysts had been transferred to plain potato root excretion. In this experiment root excretions from cress also reduced the total hatch of larvae. A temporary reduction in hatching was again observed with root excretions from black and from white mustard and, to a lesser degree, from cress and lettuce. Ellenby thinks it possible that the application of certain isothiocyanates to potato drills might be sufficient to prevent the emergence of potato-root eelworm larvae from the cysts, although not proving lethal to them. M.T.F.

(7b) Staniland presents observations on an outbreak of "tulip-root" in oats caused by *Anguillulina dipsaci* on 3 fields in Devon in 1944. Examination of the weeds growing in the crop revealed the parasite in cleavers (*Gallium Aparine* L.), common chickweed (*Stellaria media* Vill.), mouse-ear chickweed (*Cerastium arvense* L.), and sandwort (*Arenaria serpyllifolia* L.): the two last-mentioned are new host records. Successful transferences of the eelworm were made from chickweed to oats and back to chickweed. The parasite was also successfully transferred from cleavers and sandwort to oats. T.G.

8—Annals and Magazine of Natural History.

- a. BAYLIS, H. A., 1945.—"Notes on some parasitic nematodes." Ser. II, 11 (84), 793-804.
- b. PRUDHOE, S., 1945.—"On two echinostome trematodes from grebes." Ser. II, 12 (85), 1-8.

(8a) A collection of 7 nematodes is described of which *Contracaecum spiculigerum*, *Ascaridia trilabium*, *Subulura perarmata*, *Pseudophysaloptera soricina* and *Aprocta anthicola* were from hosts in Ceylon. *Pelecitus falconis* is recorded from *Pernis* sp. from Mysore. *Spirofilaria fulicae-atrae*, here described from *Podiceps r. ruficollis* from Cardiff, seems to be identical with specimens described by Yamaguti as *S. podicipitis*. The morphology of this species is described and its affinities discussed in some detail. P.A.C.

(8b) Prudhoe redescribes 2 species of echinostomes from *Podiceps* spp., "*Petasiger*" *pungens*, and *Echinostoma megacanthum*. The latter is placed in the genus "*Petasiger*", and "*P. neocomense*" and "*P. nitidus*" are regarded as synonyms of "*P. megacanthus*". A.E.F.

9—Annals of Tropical Medicine and Parasitology.

- a. BAYLIS, H. A., 1945.—"On the probable identity of a cestode of the genus *Diphyllobothrium* occurring in Wales and Eire." 39 (1), 41-45.

(9a) Baylis has endeavoured to determine the species of *Diphyllobothrium* which has recently been reported from food fishes in Britain. Examination of larvae, of adults experimentally reared, and of adults from local birds, suggests that 2 species are involved. *D. dendriticum* seems to be involved in Wales and Ireland, while specimens obtained from a cormorant in Ireland are probably *D. ditremum*. There is however considerable variation between specimens which may be host-induced—the number of testes in *D. dendriticum* is much reduced in experimental animals when compared with naturally infested gulls, while reduplication of cirrus sacs and uteri also occurs. [See also Helm. Abs., Vol. XIII, Nos. 37a, 89b, 89c.] P.A.C.

10—Archives of Pathology.

- a. HARTZ, P. H., 1945.—"Role of schistosomiasis in the etiology of cancer of the liver in the Chinese." 39 (1), 1-2.

(10a) Hartz agrees with Bonne that schistosomiasis does not play any role in the aetiology of cancer of the liver in the Chinese.

R.T.L.

11—Boletín del Laboratorio de la Clínica "Luis Razetti".

- a. ORTIZ C., I., 1945.—"Comunicación preliminar sobre una posible nueva parasitosis intestinal en Venezuela." 6 (16), 287-291.

(11a) A cestode passed by a 2½-year-old girl in Venezuela has been provisionally identified by Prof. P. Kourí of Cuba as *Inermicapsifer cubensis*. This parasite had not previously been recorded outside Cuba.

A.E.F.

12—British Medical Journal.

- a. GIBSON, T. E., 1945.—"Tapeworm in freshwater fish." [Correspondence.] Year 1945, 1 (4388), 199-200.
 b. HARE, T., 1945.—"Tapeworm in freshwater fish." [Correspondence.] Year 1945, 1 (4392), 347.
 c. EDWARDS, J. G., 1945.—"Hydatid disease of the lung." [Correspondence.] Year 1945, 2 (4412), 135.
 d. BARRETT, N. R. & THOMAS, D., 1945.—"Hydatid disease of the lung." [Correspondence.] Year 1945, 2 (4414), 197.

(12a) Plerocercoids found in trout from a Northamptonshire reservoir were fed to a guinea-pig and three rats. The rats passed eggs of *Diphylllobothrium* but later threw off the infection. Fifty dead grebe from the same source were not examined for tapeworms. Of over 100 smaller fish, including species other than trout, 40% harboured one or more smaller plerocercoids; these were fed to rats but so far have not given a positive result.

R.T.L.

(12b) From the reservoir where Gibson found the trout infected with plerocercoids [see preceding abstract] Hare has examined the great-crested grebe, *Podiceps cristatus*. Many had been picked up dead. The small intestine was acutely inflamed and much distended by *Ligula intestinalis*. It is suggested that Gibson, by feeding the plerocercoids found by him to goldfish, could produce adult *Ligula* experimentally in ducks.

R.T.L.

13—Bulletin de la Société de Pathologie Exotique.

- a. CHORINE, V. & TANGUY, Y., 1945.—"Influence du régime alimentaire sur le parasitisme intestinal." 38 (1/2), 42-47.
 b. DOLLFUS, R. P. & DESPORTES, C., 1945.—"Sur *Porrocaecum pastinacae* (Rudolphi). Inconstance et variabilité du caecum intestinal." 38 (3/4), 93-99.
 c. POIRIER, M., 1945.—"Contribution à l'étude de l'ascaridiose." 38 (3/4), 99-100.
 d. DESCHIENS, R., 1945.—"Les conditions de l'action anthelminthique de certains sels de métaux alcalins et alcalino-terreux." 38 (3/4), 101-104.
 e. MARILL, F. G. & ALCAY, L., 1945.—"Modifications hématologiques chez des Noirs sénégalais atteints d'onchocercose cutanée (gale filarienne)." 38 (5/6), 132-136.

(13a) Chorine & Tanguy noticed an increase in intestinal parasitism in Parisians during the war, while being fed a lower diet than normal. There was a striking increase in the prevalence of protozoan parasites and also of *Oxyuris*. This latter increase may however have depended, in part at least, on the absence of soap. Other helminths showed no particular increase.

P.A.C.

(13b) Dollfus & Desportes describe morphological variations in *Porrocaecum pastinacae*. The oesophageal caecum varied considerably in length and at times was absent.

P.A.C.

(13c) Poirier reports an increase in infestation with ascarids due to various war conditions. In 3 cases which he describes diagnosis was difficult as abnormal symptoms involving the liver or appendix were apparent.

P.A.C.

(13d) Deschiens has investigated the action of various salts *in vitro* on *Rhabditis macrocerca* and *in vivo* on *Aspiculuris tetraptera*. The substances were mostly halogen compounds of the sodium group of metals, of calcium and of various sulphates. Their anthelmintic properties seemed to bear no relation to the molecular concentrations. The anion Cl seemed to have a vermifugal action while the SO₄ ion did not.

P.A.C.

(13e) Differential blood counts and bone marrow analyses were carried out on 59 Senegalese infected with cutaneous onchocerciasis. While the red cell count was found to be normal, the white cells showed considerable abnormal changes. There was a great decrease in the numbers of neutrophil polymorphs, an important increase in the eosinophils and on the whole an appreciable reduction in the granulocytes. Between the two groups of subjects, 26 exclusively infected with cutaneous onchocerciasis and 24 with this infection together with other helminth infections, there was no appreciable difference in the white cell counts. Analyses of the bone marrow of 11 subjects showed numerical changes in the cell types which were not comparable with the corresponding white cell counts
J.J.C.B.

14—Bulletin of the United States Army Medical Department.

- a. SELMAN, D., 1945.—“Eosinophilia in cerebrospinal fluid. Report of case.” No. 86, 121–122.

15—California Fish and Game.

- a. DIXON, J. S. & HERMAN, C. M., 1945.—“Studies on the condition of California mule deer at Sequoia National Park.” 31 (1), 3–11.

(15a) As the result of deterioration in the condition of deer, *Odocoileus hemionus californicus*, in Sequoia National Park, an examination was made of certain animals. *Thelazia californiensis* was found to be the cause of serious eye symptoms. Internally cestode larvae were found on the omentum and lung and extensive enteritis involving the whole gut of one animal was attributed to unidentified nematode larvae.
P.A.C.

16—Canadian Journal of Comparative Medicine.

- a. EDGE, G. A., 1945.—“Parasitic infestations encountered in meat inspection.” 9 (1), 3–5.

(16a) Edge reviews very briefly the parasites which may be met with in meat inspection.
P.A.C.

17—Canadian Journal of Research. Section D. Zoological Sciences.

- a. MILLER, R. B., 1945.—“Studies on cestodes of the genus *Triaenophorus* from fish of Lesser Slave Lake, Alberta. III. Notes on *Triaenophorus nodulosus* (Pallas) in the second intermediate host.” 23 (1), 1–5.

(17a) Continuing his studies of *Triaenophorus nodulosus* [for earlier parts see Helm. Abs., Vol. XII, No. 68c & d] Miller finds that the burbot, *Lota lota maculosa*, acts as the second intermediate host in Lesser Slave Lake. Over 30 species of freshwater fishes have already been involved in Europe. The parasites develop in the liver of the young burbot and metamorphose there into the plerocercoid: encystation occurs and they are infective. If they are not taken in by the definitive host they degenerate during their second summer. Adult fish have never been found to contain the plerocercoid.
P.A.C.

18—Canadian Journal of Research. Section E. Medical Sciences.

- a. BENHAM, G. H., 1945.—“The fate of phenothiazine in rabbits. I. The detection of a new conjugate in rabbits' urine after the feeding of phenothiazine.” 23 (3), 71–79.

19—Caribbean Medical Journal.

- a. CLEARKIN, P. A., 1945.—“A note on the laboratory diagnosis of filariasis, resulting from infection by *Wuchereria bancrofti*.” 6 (5), 317–321.

(19a) Clearkin describes the routine laboratory technique employed in Georgetown for diagnosing filariasis by means of the skin reaction using antigen prepared from adult *Dirofilaria immitis*, and discusses the sensitivity and specificity of the test.
J.J.C.B.

20—Clinical Proceedings. Journal of the Cape Town Post-Graduate Medical Association.

- a. GELFAND, M., 1945.—“The clinical features of hookworm disease.” 4 (1), 21–29.

21—Current Science.

- a. BHALERAO, G. D., 1945.—“Interesting mode of the life-cycle of the lung worm, *Varestrongylus pneumonicus* Bhalerao, 1932.” 14 (4), 106-107.
- b. SARWAR, M. M., 1945.—“On the pathogenicity of *Setaria cervi* (Rud. 1819) in buffaloes.” 14 (4), 107.

(21a) Bhalerao describes the experimental demonstration of the life-cycle of *Varestrongylus pneumonicus*. First stage larvae hatched from eggs underwent no change in structure after 80 days in culture, nor did they produce infection when fed to kids. When brought in contact with the land molluscs *Macrochlamys (Euaustenia) cassida* and *Girasia* sp., the larvae infected the former species and developed through second stage to infective larvae, becoming localized in the foot and mantle. Larvae recovered from the molluscs and fed to kids resulted in a successful infection with *V. pneumonicus*.

J.J.C.B.

(21b) Sarwar records the regular occurrence of *Setaria cervi* in the small intestine tissues of buffalo calves. The disposition of the parasites, varying from complete enclosure between the muscular and serous membranes to partial freedom in the peritoneal cavity, suggests that these tissues are a preliminary site of occupation before the parasites finally emerge. The pathological reaction to the parasites is exhibited by congestion, the presence of endothelial cells, and fibrous tissue formation.

J.J.C.B.

22—East African Medical Journal.

- a. GELFAND, M., 1945.—“Geophagy and its relation to hookworm disease.” 22 (4), 98-103.

(22a) Fifty patients with hookworm infection and 50 who were negative were questioned at Salisbury Native Hospital as to whether they ate earth. Of the 50 negative cases 17 admitted to earth-eating and 9 had eaten it as children. Of the 50 positives, 14 had eaten earth and the remainder had not. The author is of the opinion that earth-eating has no relation to hookworm disease nor to any other pathological condition and adduces evidence that it may have a variety of explanations such as physiological need and belief in the magical properties of the earth.

J.J.C.B.

23—Empire Journal of Experimental Agriculture.

- a. HAWKES, J. G., 1945.—“The indigenous American potatoes and their value in plant-breeding.” 13 (49), 11-40.

(23a) No variety of potato has yet been discovered to be definitely immune to *Heterodera schachtii*, but preliminary experiments show that no hatching of cysts takes place with root excretion from *Solanum depexum* and *S. Fendleri*, while several other American wild species gave very slight hatch.

R.T.L.

24—Farming in South Africa.

- a. PARISH, E., 1945.—“Eelworm and alternate farming.” 20 (226), 10.
- b. ANON, 1945.—“The nodular-worm remedy.” 20 (226), 44-46.

(24a) Parish stresses the beneficial effect of grass on alternate farming by retaining the fertility of soil and affording some relief from the ravages of eelworm.

R.T.L.

25—Gardening Illustrated.

- a. ANON, 1945.—“Eradicating eelworm disease: methods to adopt outside and under glass.” 64 (3312), 536-537.

26—Indian Medical Gazette.

- a. ANDREASEN, A. T. & SURI, H. L., 1945.—“A case of schistosomiasis infection contracted in India.” 80 (2), 93-94.
- b. SRIVASTAVA, S. S. L., 1945.—“A case of filariasis of the eye.” 80 (2), 94.
- c. MUKERJI, A. K. & BHADURI, N. V., 1945.—“Gnathostome infection of the eye.” 80 (3), 126-128.

(26a) A Sikh with painful haematuria with eggs of *Schistosoma haematobium* type was seen in Rawalpindi Military Hospital. Except for a short visit to Poona he had never left his native district of Ropar, in India. R.T.L.

(26b) Two filarial worms were seen "rapidly moving at the macula." The author invites advice on treatment. R.T.L.

(26c) This record of human gnathostome infection is the sixth case from Bengal and the first ever recorded as an eye infection. Severe injury to the eye was caused by the worm which was immature, measuring 3.5 mm. in length by 0.41 mm. in greatest diameter. After its removal the eye condition became normal in a short time. The structure and distribution of the head and body spines lead the authors to believe that the worm may be neither *Gnathostoma spinigerum* nor *G. hispidum*, but possibly may be referable to that described by Mapleston (1929) as a new species. J.J.C.B.

27—Indian Veterinary Journal.

- a. SARWAR, M. M., 1945.—"Some observations on *Strongyloides papillosus* from Indian ruminants." 21 (5), 318-320.

(27a) Sarwar records the presence of *Strongyloides papillosus* in sheep, goats and cattle from Izatnagar and Mukteswar. Cultures kept under unfavourable conditions in the laboratory failed to develop filariform stages. P.A.C.

28—Journal of the American Veterinary Medical Association.

- a. KERNKAMP, H. C. H., 1945.—"Gastroenteric disease in swine." 106 (814), 1-6.
 b. STEWART, M. A., 1945.—"Phenothiazine in veterinary practice." 106 (817), 217-222.
 c. SCHWARTZ, B., 1945.—"Zooparasites in relation to production of meat and other animal products in wartime." 106 (819), 331-335.
 d. SCHNELLE, G. B. & JONES, T. C., 1945.—"*Dirofilaria immitis* in the eye and in an interdigital cyst." 107 (820), 14-15.

(28a) For ascariasis in pigs, oil of chenopodium, 2.5 c.c. in 2 oz. of castor or mineral oil for 50 lb. liveweight, is a valuable anthelmintic. Phenothiazine in a dose of 8 g. for liveweight between 25 to 50 lb., or 12 g. for weights of 50 to 100 lb. is also valuable. Hexylresorcinol gives fairly satisfactory results. Its chief merit is its low toxicity. The dosage recommended is 3 to 4 g. for a 50 lb. pig and thereafter it is necessary to use a purgative. R.T.L.

(28b) This is a summary of the present position of phenothiazine as an anthelmintic. R.T.L.

(28c) Schwartz reviews some of the problems caused by infestation of economically important animals with animal parasites where considerable losses of meat, etc., may occur. Phenothiazine is a very useful anthelmintic while liver-fluke infestations can be treated with hexachlorethane. Measures for prevention of infestation must also be brought into operation. P.A.C.

(28d) Two unusual cases of infection in dogs with *Dirofilaria immitis* are recorded. In one case an immature male *D. immitis* 12 cm. long was removed surgically from the anterior chamber of the eye which had become affected with diffuse cloudiness and vascularization of the cornea. Microfilariae were not found either in the blood or in the aqueous fluid. In the second case an immature female *D. immitis* 8 cm. long was removed from an abscessed interdigital cyst. Microfilariae were present in the blood, and on autopsy the heart and pulmonary artery were found to contain large masses of *D. immitis*. J.J.C.B.

29—Journal of the Department of Agriculture. South Australia.

- a. MITTON, R. L., 1945.—"Diseases in pigs associated with mismanagement." 48 (6), 252-254.

(29a) A popular article on diseases of pigs encouraged by faulty rearing mentions the round worm as the most important parasitic disease. Overcrowding in dirty sties is conducive to the disease: though it can be cured by oil of chenopodium, practical measures of prevention are a more satisfactory means of attack. P.A.C.

30—Journal of the Department of Agriculture. Victoria.

- a. GRAYSON, A. R., 1945.—“Treatment for roundworms in poultry.” 43 (4), 160.

31—Journal. Indian Medical Association.

- a. PARANJAPPE, K. D., PHALNIKAR, N. L., BHIDE, B. V. & NARGUND, K. S., 1945.—“*In vitro* observations on the anthelmintic action of some synthetic lactones and compounds allied to santonin.” 14 (4), 69–73.

(31a) Paranjape et al. have examined the toxicity of a large number of compounds to earthworms and “small freshwater fish” with the purpose of assessing possible anthelmintic value. Derivatives of hexahydronaphthalene and lactones similar to desmotroposantonin are considered to have little promise, but the simple dienones may have some anthelmintic activity. Of the butyrolactone series the higher homologues were inactive and the lower attacked the skin, but certain β -P-hydroxy phenyl α -alkyl- and α -phenyl α -alkyl- α -derivatives are recommended for further examination.

W.P.R.

32—Journal of Laboratory and Clinical Medicine.

- a. PETERSEN, M. C. & FAHEY, J., 1945.—“Oxyuriasis. Simplified method of diagnosis with glass slide; incidence in a Minnesota state hospital; result of treatment with gentian violet.” 30 (3), 259–261.
- b. TSUCHIYA, H. & RELLER, H., 1945.—“A case of *Trichostrongylus* infection with notes on the identification of ova.” 30 (3), 262–266.

(32) Petersen & Fahey found 59% (1,100) of 1,871 persons in the Wilmar (Minnesota) State Hospital to be infected with pinworms. The incidence among chronic mental patients was 72%. The most rapid method of testing was found to be the direct application of a numbered slide to the anus. Treatment with gentian violet was 91% effective. M.R.Y.

(32b) Tsuchiya & Reller record the presence of an unidentified species of *Trichostrongylus* in man in U.S.A., based on the finding of characteristic ova in the stool. The ova measured on an average 86 μ long by 43 μ broad. They were more pointed and had a thicker shell than those of hookworm, from which they must be differentiated.

P.A.C.

33—Journal of Parasitology.

- a. VAN CLEAVE, H. J., 1945.—“A new species of the acanthocephalan genus *Illiosentis* (Rhadinorhynchidae).” 31 (1), 57–60.
- b. CORT, W. W., BRACKETT, S., OLIVIER, L. & NOLF, L. O., 1945.—“Influence of larval trematode infections in snails on their second intermediate host relations to the strigeid trematode, *Cotylurus flabelliformis* (Faust, 1917).” 31 (1), 61–78.
- c. CULLINAN, R. P., 1945.—“The larvae of *Eustrongylides ignotus* in *Fundulus heteroclitus*.” 31 (2), 109–112.
- d. HAWKINS, P. A. & COLE, C. L., 1945.—“Studies of sheep parasites. V. Immunity to gastrointestinal nematodes.” 31 (2), 113–118.
- e. VAN CLEAVE, H. J., 1945.—“A new species of the acanthocephalan genus *Polymorphus* from the American coot.” 31 (2), 128–130.
- f. DENTON, J. F., 1945.—“Studies on the life history of *Brachylecithum americanum* n.sp., a liver fluke of passerine birds.” 31 (2), 131–141.
- g. RANKIN, JR., J. S., 1945.—“An ecological study of the helminth parasites of amphibians and reptiles of western Massachusetts and vicinity.” 31 (2), 142–150.
- h. STUNKARD, H. W., 1945.—“The Syrian hamster, *Cricetus auratus*, host of *Hymenolepis nana*.” 31 (2), 151.

(33a) Van Cleave describes *Illiosentis cetratus* n.sp., an acanthocephalan parasite of the intestine of various fish (*Menticirrhus undulatus*, *Roncador stearnsi* and *Umbrina roncadore*) in California. It can be recognized by the number and arrangement of the hooks on the proboscis. The developmental stages are unknown.

P.A.C.

(33b) Cort et al. bring together 9 years experimental evidence on the susceptibility of the second intermediate host of *Cotylurus flabelliformis*. The metacercaria is normally nourished, through its extensive metamorphosis to the tetracotyle, directly by the hermaphroditic gland of certain lymnaeid snails; but when germinal sacs are present the cercaria always enters them and

develops more rapidly, hyperparasitically, cut off from molluscan tissue. Presence of germinal sacs of its own species confers a specific immunity on the host to penetration by cercariae, though exceptional entrants develop normally within the germ sacs. Normal second intermediate hosts show non-specific immunity when harbouring germ sacs of some species, but others, of related species or not, have no effect on the numbers of metacercariae of *C. flabelliformis* developing within them. Abnormal intermediate hosts (including the highly abnormal physid and planorbid hosts) may be rendered susceptible by the presence of germ sacs of those species which produce non-specific immunity in normal hosts. N.G.S.

(33c) *Fundulus heteroclitus* and a variety of other fish caught in Chesapeake Bay, Md., are parasitized by *Eustrongylides* larvae. 13.3% of 3,507 specimens of *F. heteroclitus* were found to be infected. The larvae occurred chiefly in cysts along the mesenteries. Multiple infections were rare. R.T.L.

(33d) Hawkins & Cole demonstrate the development of immune bodies in the sera of sheep carrying gastro-intestinal nematodes. When exsheathed infective strongyle larvae are immersed in immune serum, precipitates are formed round the various openings and generally in the neighbourhood of the cuticle. The presence of these immune bodies probably enable the sheep to throw off their worm burden and to prevent further infection by immobilizing the larvae in the gastric or intestinal mucosa. P.A.C.

(33e) *Polymorphus trochus* n.sp. is described from the coot, *Fulica americana*. The new species differs from hitherto known forms in the distinctive form of the proboscis which is inflated and at the end of an attenuated neck is spheroidal in the female, but the terminal portion is much reduced and has a nipple-like projection. The males were relatively few and lacked the bulbular enlargement. R.T.L.

(33f) Denton gives a full account of his experiments to elucidate the life-history of *Brachylecithum* [*Lyperosomum*] *americanum* n.sp. (see Helm. Abs., Vol. X, No. 254m (xi)) from the bile ducts of *Cassidix mexicanus prosopidicola* (type host from Texas), *Quiscalus versicolor*, *Sturnella magna*, *Corvus brachyrhynchos* and *Cyanocitta cristata*. Eggs develop in the snails *Praticolella berlandieriana* and *Polygyra texasiana* into mother sporocysts in 64 days with a simultaneous generation of 50 to 70 daughter sporocysts which escape by rupture. The daughters migrate to the wall of the mantle cavity and after the 150th day cercariae begin to emerge from the birth canal; they collect in masses of 150 to 300, in which they are expelled from the respiratory pore of the snail and deposited on vegetation. The cercariae are very similar to those of *Dicrocoelium dendriticum*, in the stylet, penetration glands, tail and flame-cell pattern. There is some evidence that they penetrate chrysomelid beetles (*Diabrotica duodecimpunctata* and *Gastroidia cyanea*) whence they infect the insectivorous final hosts of the families Corvidae and Icteridae. The adult is related to *B. papabejani* (Skrjabin & Udinzew), but differs in having the suckers equal in size, and smaller eggs. N.G.S.

(33g) The parasites of 262 species of amphibia and reptilia of western Massachusetts comprised 10 nematodes, 12 trematodes, 4 cestodes and 1 acanthocephalan. A correlation is offered of the helminth infections with the host habitats. Doubts are expressed on the validity of certain of the trematode species, the variations being due probably to environmental rather than genetic factors. R.T.L.

(33h) As the Syrian hamster, *Cricetus auratus*, is being used increasingly as a laboratory animal, attention is drawn to the possibility of infection of laboratory workers with *Hymenolepis nana* which has been found as a natural infection on several occasions. R.T.L.

34—Journal of the Royal Army Medical Corps.

- a. WHITELOW, J. C. G. & SANDY, F., 1945.—“A case of infection of a European with *Strongyloides stercoralis*.” 74 (1), 35.

35—Journal of the Royal Army Veterinary Corps.

- a. GRIFFITHS, R. B., 1945.—“A case of bilateral ocular filariasis in the mule.” 16 (2), 151–152.
- b. SINGH, R. K., 1945.—“Cutaneous filariasis.” 16 (3), 193–194.

(35b) Cutaneous filariasis occurs very frequently among equines in Italy and Sicily while cattle in these regions are free from the disease. Indian cattle however suffer heavily from it. Equines imported to Italy and Sicily for military service show no symptoms even after being exposed to infection for periods up to 10 months. Patchy swellings appear on the back of the animal and bleeding occurs later: the condition is aggravated during bright light and it largely disappears during winter. Treatment with arsenic or antimony preparations is recommended.

P.A.C.

36—Journal of the South African Veterinary Medical Association.

- a. MÖNNIG, H. O., 1945.—“Notes on modern therapy.” 16 (1), 7-9.

(36a) Mönnig summarizes briefly the application and dosages in some of the most recent methods of treatment of domestic stock for helminths and insect pests.

J.J.C.B.

37—Journal of the Tennessee Academy of Science.

- a. HARWOOD, P. D., GUTHRIE, J. E. & PREBLE, N. A., 1945.—“Phenothiazine-salt mixtures for the control of gastro-intestinal parasites of beef cattle on pasture.” 20 (2), 159-173.

(37a) Provision of phenothiazine-salt licks for cattle caused a significant fall in the number of helminth eggs in the faeces. A significant rise in weight was also noted. It is, however, only possible to use these licks for beef cattle as the colour and flavour of milk is affected by the intake of phenothiazine. The presence of the anthelmintic in the lick reduced the salt consumption, particularly in dry conditions, but the fall was not in any way harmful to the cattle.

P.A.C.

38—Lancet.

- a. BLACKLOCK, D. B., 1945.—“Metazoan immunity.” Year 1945, 1 (6334), 84-85.

39—Mycologia.

- a. DRECHSLER, C., 1945.—“Several additional Phycomycetes subsisting on nematodes and amoebae.” 37 (1), 1-31.

(39a) Among the predacious fungi described by Drechsler in this paper is one, *Cystopage intercalaris* n.sp., which captures small free-living nematodes up to 0.5 mm. long, such as species of *Acrobeloides*, *Cephalobus*, *Plectus* and *Rhabditis* spp., by means of a sticky substance extruded from the hyphae.

I.G.

40—Nature. London.

- a. STEPHENSON, W., 1945.—“Survival of *Fasciola hepatica* L. *in vitro*.” [Correspondence.] 155 (3930), 240-241.
 b. DAVENPORT, H. E., 1945.—“Haemoglobins of *Ascaris lumbricoides* var. *suis*.” [Correspondence.] 155 (3939), 516-517.
 c. ELLENBY, C., 1945.—“Control of the potato-root eelworm *Heterodera rostochiensis* Wollenweber, by allyl isothiocyanate.” [Correspondence.] 155 (3940), 544.
 d. ROTH, H., 1945.—“Serodiagnosis of trichinosis by microscopical testing with living *Trichina* larvae.” [Correspondence.] 155 (3947), 758-759.

(40a) Sugars increase the survival time of *Fasciola hepatica* *in vitro*. Survival did not exceed 60 hours but was sufficient for testing anthelmintics. Although carbon tetrachloride is the most effective anthelmintic *in vivo* it proved innocuous *in vitro*.

R.T.L.

(40b) Davenport reports that the oxyhaemoglobin from the body wall of *Ascaris lumbricoides* var. *suis* shows an unusual spectrum, the α -band being narrower and less intense than the β -band. The de-oxygenated pigment showed a normal spectrum. Though body wall oxyhaemoglobin became de-oxygenated in worms kept under anaerobic conditions, the pigment was found to have a very high affinity for oxygen. Perienteric fluid oxyhaemoglobin was similar to that of the body wall but showed an even greater resistance to de-oxygenation, the t_{50} , under the influence of sodium hyposulphite *in vacuo* at 8°C. and pH7, being $1,000 \pm 100$ sec. The chief derivatives of the *Ascaris* pigments behaved in a manner characteristic of haemoglobin derivatives. *Strongylus* sp. perienteric fluid was found to contain a pigment similar to that from *Ascaris lumbricoides*.

W.P.R.

(40c) Ellenby says that, in a small-scale field trial for the control of potato-root eelworm, mustard oil (allyl isothiocyanate) on granular peat, when applied at the rate of 0.1 cwt. per acre in the drills at the time of planting, caused the potatoes on the treated plots to be superior to the controls and to give a yield 100 per cent. greater. No details are given but an account of the work is to be published elsewhere. M.T.F.

(40d) Diagnosis of trichinosis can be made by a modified precipitation test more satisfactorily than by either the classical precipitation test or by the intradermal test. Artificially freed *Trichina* larvae are immersed in suspected serum which has been centrifuged twice, using hollow ground slides and covered with sterile cover slips. After 5 hours at 37°C. positive sera show finely granular precipitates round the anterior ends of the worms which are still motile. After 24 hours the precipitates are free in the serum and the worms are shrunken. The test gives positive results as early as 10 days after clinical symptoms appear. The test has been useful in both human and animal infestations. [See also Helm. Abs., Vol. X, No. 47a.] P.A.C.

41—New Zealand Journal of Agriculture.

- a. WHITTEN, L. K. & BATHAM, E. J., 1945.—“Some parasitic lesions causing condemnation of lamb livers.” 70 (1), 70–72.
- b. WHITTEN, L. K., 1945.—“Liver-fluke of sheep and cattle.” 70 (2), 167–171.
- c. GILDER, R. P., 1945.—“Gastro-intestinal parasites in calves.” 70 (4), 413, 415.
- d. WHITTEN, L. K., 1945.—“Internal parasites of sheep.” 70 (5), 487–492.
- e. ANON, 1945.—“Red worms in horses.” 70 (6), 633–635.

(41a) Whitten & Batham give a popular account of helminth cysts in sheep in New Zealand, where liver damage may reach to 90% to 100% of the lambs in certain districts. The estimated annual financial loss resulting from condemnations of sheep livers, mostly due to *Echinococcus*, is about £200,000. Over 100 cases in man are treated annually in hospital. R.T.L.

(41b) Liver-fluke is limited in range in New Zealand. The most important centre is Hawke's Bay County. Smaller areas to the north extend into the Poverty Bay district. Isolated foci occur at Opotiki, Ngaruawahia, in the Owen Valley, in Central Otago, and on irrigated country near Omakau. The snails so far implicated as intermediate hosts are *Myxas ampulla* in Hawke's Bay and Poverty Bay, *M. ampulla globosa* in Central Otago, and *Limnaea alfredi* in the Nelson Province. In New Zealand cercariae are discharged between October and May, the peak occurring about February. Black disease, due to a spore-forming organism of the gas-gangrene group, is a very acute disease associated with flukes in some areas. R.T.L.

42—North American Veterinarian.

- a. SCHNELLE, G. B., ROBY, T. O., YOUNG, R. M. & JONES, T. C., 1945.—“Canine filariasis: a study of 100 cases.” 26 (3), 155–164.

(42a) The circulating blood of 81 dogs with *Dirofilaria immitis* infection was freed from microfilariae by Fouadin used either intravenously or intramuscularly. Only two dogs died under treatment. Toxic symptoms were treated with fluids, sulfadiazine and multivitamin capsules. Dogs showing evidence of severe nephritis were not considered suitable for treatment. R.T.L.

43—Parasitology.

- a. STEPHENSON, W., 1945.—“The effects of acids on a soil nematode.” 36 (3/4), 158–164.
- b. REES, G., 1945.—“A record of parasitic worms from fishes in rock pools at Aberystwyth.” 36 (3/4), 165–167.
- c. SPROSTON, N. G., 1945.—“The genus *Kuhnia* n.g. (Trematoda: Monogenea). An examination of the value of some specific characters, including factors of relative growth.” 36 (3/4), 176–190.
- d. SPROSTON, N. G., 1945.—“A note on the comparative anatomy of the clamps in the superfamily Diclidophoroidea (Trematoda: Monogenea).” 36 (3/4), 191–194.
- e. DOUGHERTY, E. C., 1945.—“The nematode lungworms (suborder Strongylina) of North American deer of the genus *Odocoileus*.” 36 (3/4), 199–208.
- f. ROGERS, W. P., 1945.—“Studies on the nature and properties of the perienteric fluid of *Ascaris lumbricoides*.” 36 (3/4), 211–218.

(43a) Stephenson has studied the effect of a number of acids, both inorganic and organic, upon a free-living nematode, *Rhabditis terrestris* Stephenson. The inorganic acids were found to be more toxic than the organic. Of the latter formic acid is much more toxic than others of the fatty acid series. The cuticle tends to become sticky in highly acid solutions and a vesicular swelling occurs on the body in the region of the oesophagus. T.G.

(43b) Seven species of Trematoda, 3 of Cestoda, 2 of Nematoda, and 2 of Acanthocephala are recorded from 100 fishes collected from rock pools on the seashore at Aberystwyth. None is new to science. R.T.L.

(43c) *Kuhnina* n.g. is created by Sproston for the gill trematodes of mackerel, with *K. scomberi* (Kühn) as type; *K. minor* (Goto) is redescribed and some large forms from British waters. The clamps on the posterior end are newly interpreted as being formed of a continuous double cuticular loop with a middle, opposable piece (as in *Mazocraëis* also, but differing from that genus in the disposition of the genital armature and in the absence of a vagina). An alternation of sex phases in Monogenea is proved by the study of a large series of *K. scomberi*, and other developmental changes indicate that neither the absolute size, nor the ratios of parts, alone, are of any diagnostic value. Comparison of differential growth characters shows that they may be utilized in forming a polytypic species concept, and may contribute to a synoptic picture of a genus. N.G.S.

(43d) The homology of the clamp sclerites is traced throughout the Diclidophoroidea by Sproston, who shows that the type of clamp is a useful basis for the classification of families. A probable phylogenetic sequence runs from the most generalized mazocraeid clamp, with its unbroken double loop and middle, opposable piece and incompletely cuticularized median tendon; through the discocotylid, in which the dorsal loop is reduced, and the cuticularized tendon forms the spring tending to open the clamp, the parts of which are jointed; to, on the one hand, the most complex diclidophorid type, where the sclerites are further jointed and separated, and made asymmetrical by the tendency to develop a lateral sucker; and on the other hand, to the hexostomatid, extremely reduced type, where three sclerites are imbedded in a cuticular sucker. N.G.S.

(43e) Dougherty has examined the lungworms which parasitize species of the genus *Odocoileus* in North America: 7 species are involved, including *Pneumoststrongylus tenuis* n.sp. from *O. virginianus virginianus*. It can be distinguished by the configuration and chitinization of the gubernaculum and by the appearance of the dorsal ray. New host records are *Varestrongylus alpenae* and *P. tenuis* from *O. v. virginianus* and *Dictyocaulus viviparus* from *O. hemionus columbianus*. Reviewing the lungworms generally, Dougherty comes to the conclusion that *Pneumoststrongylus sagittatus*, *P. alpenae* and *P. caprioli* should be transferred to the genus *Varestrongylus*. P.A.C.

(43f) Rogers gives figures showing the amounts of the chief organic and inorganic substances found in the perienteric fluid of *Ascaris lumbricoides* of the pig immediately after removal from the host, and after varying periods of *in vitro* starvation. The effects of phosphate in the culture medium on the composition of the perienteric fluid is recorded. W.P.R.

44—Physiological Zoology.

a. WILMOTH, J. H., 1945.—“Studies on metabolism of *Taenia taeniaeformis*.” 18 (1), 60–80.

(44a) Wilmoth records the survival of larval *Taenia taeniaeformis* under various conditions of *in vitro* culture. Survival, longest (576 hours) in simple media, was decreased by anaerobiasis and led to small falls in pH. The effects of pH and temperature changes are noted. Oxygen consumption (Winkler's method) was in part cyanide-sensitive and the inhibition was reversible. Methylene blue reduction was not accelerated by glucose. W.P.R.

45—Phytopathology.

a. CHU, V.-M., 1945.—“The prevalence of the wheat nematode in China and its control.” 35 (5), 288–295.

b. COURTNEY, W. D., 1945.—“Nematode infection of Croft Easter lilies.” 35 (7), 572.

(45a) Chu shows that the wheat gall nematode, *Anguillulina tritici*, occurs practically throughout every wheat growing area of China and that it effects marked reductions in the yield of grain annually. He discusses experiments on varietal resistance to the parasite, shows that there is not much risk of infection from the soil, especially where wheat is followed by rice, and then proceeds to the consideration of chemical and physical methods of seed treatment for the elimination of the galls. Chemical methods and flotation in brine or water are shown to be inapplicable to Chinese conditions, but a mechanical method of separation by means of a modified "trieur" made entirely of wood is shown to be highly efficient. It is called the "wheat-nematode eliminator" and is capable of a 99.7 to 99.95% efficiency in cleaning a mixed sample of grain and galls when the revolving drum is set at 1.5% inclination from the horizontal position. T.G.

(45b) Courtney reports the occurrence, in Washington State, U.S.A., of a disease of Croft Easter lilies caused by the bud and leaf eelworm, *Aphelenchoides olesistus*. The leaves of infected plants are strongly undercurled, become bronzy and finally brown in colour before dying. He shows that the parasite is carried over in dormant bulbs used as propagation stock. T.G.

46—Plant Disease Reporter.

- a. McWHORTER, F. P., 1945.—"The diseases of *Lilium longiflorum* in the Pacific Northwest." 29 (2), 40-44.
- b. BLODGETT, E. C., 1945.—"Further survey for stem nematode on potatoes in Idaho: 1944." 29 (2), 58-60.

(46a) In dealing with diseases of *Lilium longiflorum* in the Pacific Northwest, McWhorter devotes a section to bunchy top and dieback under the heading "Nematode Diseases". He says that nematodes have been found associated with the diseased tissues in both bunchy top and dieback. In the case of the last mentioned the eelworms have been identified as *Aphelenchoides olesistus*. It is claimed that dieback is of nematode origin but the relationship of nematodes to bunchy top lacks experimental proof. T.G.

(46b) Blodgett gives the results of a survey carried out on a number of farms in the vicinity of Aberdeen, Idaho, to determine the occurrence of a disease of potato tubers as they were being lifted and which was thought to be caused by the stem eelworm *Ditylenchus dipsaci*. In a footnote it is indicated that the associated eelworm occurring in affected tubers, which were found on 6 of the farms surveyed, is not the stem eelworm but a new species which is to be described shortly. T.G.

47—Poultry Science.

- a. PAYNE, L. F., SCHUMACHER, A. E. & BUSHNELL, L. D., 1945.—"Milk as a beverage increased tapeworm infestation in poultry." 24 (1), 93-94.

(47a) Hens that were fed skim milk as fluid in the diet developed more cestodes than did those having water. However they had fewer nematodes. The heavy cestode infestations did not seem to affect their egg-laying capacity. Flies which are the vectors of some poultry cestodes clustered round the milk and were presumably taken up by the hens. P.A.C.

48—Proceedings of the Helminthological Society of Washington.

- a. HARWOOD, P. D. & STUNZ, D. I., 1945.—"Phenothiazine and nicotine-bentonite as an anthelmintic in turkeys." 12 (1), 1-2.
- b. OLSEN, O. W. & ALLEN, R. W., 1945.—"Tests with carbon tetrachloride, hexachlorethane, and tetrachlorethylene, for removing the fringed tapeworm of sheep." 12 (1), 2.
- c. LUCKER, J. T. & DIKMANS, G., 1945.—"The distribution of *Pseudostertagia bullosa* and some new records of nematodes from pronghorn antelope (*Antilocapra americana*)." 12 (1), 2-4.
- d. UNDERWOOD, P. C., 1945.—"Some chemotherapeutic tests in canine filariasis (*Dirofilaria immitis*)." 12 (1), 4-6.
- e. ANDREWS, J. S. & CONNELLY, J. W., 1945.—"Worm parasites in swine raised under a moderate degree of sanitation." 12 (1), 6-12.
- f. WEHR, E. E. & ALLEN, R. W., 1945.—"Additional studies on the life cycle of *Capillaria caudinflata*, a nematode parasite of chickens and turkeys." 12 (1), 12-14.

- g. CHRISTIE, J. R., 1945.—“Some preliminary tests to determine the efficacy of certain substances when used as soil fumigants to control the root-knot nematode, *Heterodera marioni* (Cornu) Goodey.” 12 (1), 14-19.
- h. ENZIE, F. D., 1945.—“Anthelmintic studies with some thymol-like compounds.” 12 (1), 19-24.
- i. ENZIE, F. D., 1945.—“Methyl chloroform as an anthelmintic.” 12 (1), 24-26.

(48a) A mixture of phenothiazine and nicotine-bentonite seems to be a useful anthelmintic for turkeys, particularly against *Heterakis gallinae*. It was less successful against *Ascaridia dissimilis*. The authors are of the opinion that the name *A. gallopavonis* should be used instead of *A. dissimilis*, having a clear priority over the latter name. It is the first record of this species in domestic turkeys. *A. galli* was not found.

P.A.C.

(48b) Olsen & Allen were unable to show that carbon tetrachloride, hexachlorethane and tetrachlorethylene have any anthelmintic effect against *Thysanosoma actinioides* in sheep.

P.A.C.

(48c) Lucker & Dikmans record the presence of *Pseudostertagia bullosa* in wild pronghorn antelopes, *Antilocapra americana*, in South Dakota and Montana. This is the first record of infection since the species was described by Ransom & Hall from the abomasum of sheep. The authors suggest the species is normally a parasite of antelopes and that sheep are secondary hosts: they record for the first time from the pronghorn antelope, *Cooperia bisonis*, *Nematodirus abnormalis* and *Marshallagia marshalli* and for the first time in the United States *Trichostrongylus colubriformis*, *Nematodirus spathiger*, *Haemonchus contortus* and *Trichuris discolor*.

P.A.C.

(48d) Underwood has investigated the anthelmintic effect of 11 organic compounds, mostly of the heavy metals, against *Dirofilaria immitis* in dogs. None were effective and some were definitely toxic though tryparsamide had a tonic effect.

P.A.C.

(48e) Andrews & Connelly have evidence that even a moderate degree of sanitation is useful in controlling *Ascaris lumbricoides*, *Macracanthorhynchus hirudinaceus*, *Metastrongylus elongatus*, *Choerostrongylus pudendotectus*, *Oesophagostomum longicaudum*, *O. brevicaudum* and *Physaloptera sexalatus*. The pigs however contained as many *Ascarops strongylina*, *Strongyloides ransomi*, *Oesophagostomum dentatum* and *Trichuris suis* as pigs kept under other environmental conditions.

P.A.C.

(48f) Investigations into the life-cycle of *Capillaria caudinflata* indicate that *Eisemia foetida* and *E. caliginosa* are suitable vectors, and larvae are easily recoverable 27 to 31 days after infestation. They can be distinguished from the larvae of *C. annulata* by their slim contour and high activity and by the presence of a cuticular constriction at the junction of the bifurcated tail with the body.

P.A.C.

(48g) Christie tested a number of chemicals for their efficacy in killing root-knot nematodes in soil. The method used was to bury cheese cloth bags containing root-knot inoculum 6 inches deep in soil at distances of 3", 6", 9", 12" and 15", in duplicate series, each side of a point where the chemical was to be injected. 10 c.c. of the chemical was then injected to a depth of 6" and the injection hole filled in with soil which was moistened to form a water seal. After 7, 9 or 14 days the bags were removed and the inoculum placed in a pot of soil in which a squash plant was grown for 4 weeks: the roots were then examined for galls and the plant classified according to the degree of galling. The moisture and temperature of the soil were determined at the time of the injection. The most promising chemicals were ethylene dibromide and D-D, the former being lethal at 12", the latter at 9" in most cases. Dowfume G (10% methyl bromide in a mixture of 3 parts ethylene dichloride and one part carbon tetrachloride) and chloropicrin came next in efficiency followed by 1, 1,1,2-trichlorethane, which was lethal at 3" from the injection point. The other chemicals tested were ineffective.

M.T.F.

(48h) A group of substances, chemically related to thymol, show useful anthelmintic properties when used in dogs. An isomer of thymol was strongly ascaricidal but relatively ineffective against hookworm. It seemed to be non-toxic.

P.A.C.

(48i) The use of methyl chloroform as an anthelmintic for dogs and chickens has been investigated by Enzie. The drug was administered in hard gelatin capsules after fasting the

animal. Ascarids were removed by doses of 0.1 c.c. per lb. of body weight in dogs: hookworms needed 0.3 c.c. per lb. of body weight. There seemed to be no action on whipworm in dogs, or on heterakids or cestodes in chicken. It was well tolerated. P.A.C.

49—Proceedings of the Indian Academy of Sciences. Section B.

- a. CHAUHAN, B. S., 1945.—“Trematodes from Indian marine fishes. Part I. On some new monogenetic trematodes of the sub-orders Monopisthocotylea Odhner, 1912 and Polyopisthocotylea Odhner, 1912.” 21 (3), 129-159.
- b. CHAUHAN, B. S., 1945.—“Trematodes from Indian marine fishes. Part IV. On some trematodes of the family Hemiuridae, Lühe, 1901, with description of six new forms.” 21 (3), 160-173.

(49a) Chauhan reviews the systematics of Monogenea as it bears upon the 8 new species he describes from the gills of marine fishes from Bombay: *Ancyrocephalus alatus* n.sp. from *Muraenesox talabonoides*, *Arius fulcarius*, *Mugil parsia* and *Harpodon nehereus*; *Lamellodiscus belengiri* n.sp. (also as *L. belengeri*) from *Sciaena belengeri*, *M. talabonoides* and *S. carulta*; *Cyclocotyla multaesteticulae* n.sp. from *Pellona* sp.; *Bilateracotyle chirocentrosus* n.g., n.sp. from *S. belengeri* and *Chirocentrus dorab*. This new genus is placed in Protomicrocotylinae and differs from the type genus in having a muscular, discoid, haptor bearing 3 pairs of hooks and in having 3 pairs of clamps on the end of the body. *Pricea* n.g. is placed in Gastrocotylidae and is characterized by the bilaterally developed haptor having persistent anchors, and the unique feature of 2 anchors, one above the other, on the body above the haptor. *P. multae* n.sp. (type) from *Cybbium lanceolatus*; *P. minimae* n.sp. from *Thynnus pelamys*; and *P. microcotylae* n.sp. from *Scomber microlepidotus*; *Pseudaxine indicana* n.sp. from *Chrysophrys berda*. A key is given to 18 of the genera of Tetraonchinae and to 12 species of the genus *Cyclocotyla* of Price (whose classification is adhered to throughout). N.G.S.

(49b) Six new hemiurid species are described by Chauhan from the alimentary canal of marine fishes from Bombay: *Aphanurus microrchis* n.sp. from *Mugil parsia*; *Lecithochirium polynemus* n.sp. (also as *L. polynemus*) from *Polynemus indicus*, and a variant from *M. parsia*; *L. acutus* n.sp. from *Arius fulcarius*; *Lecithocladium annulatum* n.sp. from *Stromateus cinereus*; *L. glandulum* n.sp. from *Lutjanus johnii* and *Mugil speigleri*; *L. carultum* n.sp. from *Sciaena carulta* and *Harpodon nehereus*. The Chinese species, *L. longicauda* Shen Tseng, is transferred to the genus *Stomachicola*, and variants of *S. muraenesocis* are recorded from *Muraenesox talabonoides*. N.G.S.

50—Revista de la Asociación Médica Argentina.

- a. GRINBLAT, S., 1945.—“Estudio sobre el valor de la reacción de Casoni complementada con la prueba de Michailow para el diagnóstico de la equinococcosis.” 59 (549/550), 17-26. [English, French and German summaries, p. 25.]

(50a) Grinblat has investigated the use of the Casoni reaction and Michailow's test in the diagnosis of hydatid disease. Using titrated antigens, both tests were accurately 100% positive. Using hydatid fluid however both gave some doubtful results in both experimental and control groups, and positive results also occurred in patients suffering from other diseases. In all groups of patients, there were a larger number of positive results with the immediate action than with the delayed action. P.A.C.

51—Revista Brasileira de Biologia.

- a. GRAÑA, A., 1945.—“Antibodies against sheep erythrocytes and eosinophiles produced in subjects injected with saline extract of *Ascaris lumbricoides* suum.” 5 (1), 81-86.
- b. FREITAS, M. G., 1945.—“*Anoplocephala mamilana* (Cestoda, Anoplocephalidae) em equinos no Brasil.” 5 (1), 87-90.

(51a) Graña shows that injections of *Ascaris lumbricoides* extracts will cause the production in humans of antibodies and haemolysins for sheep erythrocytes. There is a considerable increase in eosinophiles locally. Sensitized rabbits do not appear to develop these haemolysins,

though there is an intense local reaction. The development of these heterophile antibodies may therefore be a human character.

P.A.C.

52—Revista de Medicina Tropical y Parasitología, Bacteriología, Clínica y Laboratorio.

- a. FERNÁNDEZ SUÁREZ, F. W., 1945.—“Sobre el *Inermicapsifer cubensis* de Kouri (1938-1939).” 11 (1/2), 5-6.
- b. FERNÁNDEZ Y SUÁREZ, F. W., 1945.—“Estudio sobre parasitismo intestinal en 200 niñas campesinas.” 11 (1/2), 18-20.

(52a) Fernández Suárez reports a further case of human infestation with *Inermicapsifer cubensis* in Cuba. The host was a 2-year-old child.

P.A.C.

(52b) A parasitological examination of 200 country children in Cuba brought 5 helminth species to light. Infestations with *Trichuris trichiura* were the most frequent and the most intense, followed by *Necator americanus*. *Ascaris lumbricoides*, *Enterobius vermicularis* and *Hymenolepis nana* were also present. Multiple infestations were common, one child having 7 parasite species.

P.A.C.

53—Science.

- a. CRAM, E. B., JONES, M. F. & WRIGHT, W. H., 1945.—“A potential intermediate host of *Schistosoma mansoni*.” 101 (2621), 302.

(53a) Heretofore no intermediate host for any of the 3 human schistosomes has been detected in continental United States. Cram, Jones & Wright now report that *Tropicorbis havanensis* is an efficient intermediary for *S. mansoni* as a result of experimental infection with laboratory-reared progeny. According to the U.S. Museum records the snail occurs in considerable numbers in various places in Cuba, in Lake Pontchartrain, Louisiana, and in Comal County, Texas.

R.T.L.

54—South African Medical Journal.

- a. CAWSTON, F. G., 1945.—“*Bulinus forskalii* (Ehrenburg) as a factor in the spread of schistosomiasis.” 19 (9), 155.
- b. ALVES, W., 1945.—“Intensive treatment of schistosomiasis with antimony. (Preliminary note).” 19 (10), 171-172.

(54b) The results of attempts to cure schistosomiasis in 6 cases by intensive antimony therapy within two or three days are recorded. At least 715 mgms. of sodium antimonyl tartrate was administered in 30 hours.

R.T.L.

55—Transactions of the American Microscopical Society.

- a. GROVES, R. E., 1945.—“An ecological study of *Phyllodistomum solidum* Rankin, 1937 (Trematoda: Gorgoderidae).” 64 (2), 112-132.
- b. VAN CLEAVE, H. J., 1945.—“The status of the acanthocephalan genus *Arhythmorhynchus*, with particular reference to the validity of *A. brevis*.” 64 (2), 133-137.
- c. DICKERMAN, E. E., 1945.—“Studies on the trematode family Azygiidae. II. Parthenitae and cercariae of *Proterometra macrostoma* (Faust).” 64 (2), 138-144.
- d. WISSEMAN, JR., C. L., 1945.—“Morphology of the cysticeroid of the fowl tapeworm, *Raillietina cesticillus* (Molin).” 64 (2), 145-150.

(55a) Groves has provided independent experimental proof of the life-history of *Phyllodistomum solidum*, together with supplementary ecological data from Licking Co., Ohio. Miracidia did not hatch from ripe eggs in pond, distilled, nor fresh (alkaline) tap water, but only in tap water after standing for a day and becoming nearly neutral; they develop into mother sporocysts only in *Pisidium pusillum*, which they enter passively. The few daughter sporocysts become loosely attached to the gills and produce a few cercariae each. The cercarial body is virtually enclosed in a thick walled anterior capsule attached to a large structureless conical tail, at the tip of which is a small attachment disc. Penetration glands open on to dorsal flanges of a slightly projecting stylet; sensory papillae are evanescent on the cercarial body, but sensory

hairs were not seen. Hungry naiads of *Ichnura posita* ingested the cercariae if taken head first, but showed distaste for the tail, and discomfort as the cercarial body penetrated the oesophageal wall. Encystment in the thorax was complete in 15 minutes. Survival in this host was only 40%, whereas 98% survived of those ingested by the external gill-stage larvae of *Desmognathus fuscus* (evidently its natural host in this region). Metacercariae are infective in 12 days or less, when they are eaten by adult salamanders, eventually migrating to the bladder, but never ascending the ureters. A maximum of only 16 living worms was found in the bladder of experimental animals, but the mean worm burden in natural infections was 1.42 (never more than 4). 1,214 likely vertebrates (11 species) were examined for adults, which were found only in *D. fuscus* (4.6%), and in one of 97 *Eurycea bislineata*. No naiads occurred in the area studied, so that the rarity of natural infections may be due, partly to the infrequency of the adult salamander eating its larvae (acting as intermediate hosts), and partly to other ecological factors studied here. An emended description of *P. solidum* is given from a widely varying series of 25 adults. [See also Helm. Abs., Vol. XII, No. 12a.] N.G.S.

(55b) Van Cleave has examined new material of *Arhythmorhynchus brevis* Van Cleave, emended its diagnosis, and is satisfied that there is no reason for transferring it to the genus *Polymorphus* as Meyer has done. *Southwellina* Witenberg, is a direct synonym of *Arhythmorhynchus*. The range of *A. brevis* is extended from the southern tip of Illinois to the north of Minnesota; and its new hosts are: *Pandion haliaetus carolinensis*, *Nycticorax n. nycticorax*, *N. n. hoactli* and *Ardea herodias herodias*; the last two (migratory water birds) are also hosts for *A. duocinctus* Chandler, though the infections do not overlap. It is concluded that infection is contracted in the winter residence rather than during migration. N.G.S.

(55c) Dickerman describes the developmental stages of *Proterometra macrostoma* from extensive collections from *Goniobasis* and *Pleurocerca* snails of the Great Lakes region. Three distinct, non-intergrading, types of cercaria were found, which being fed to young *Aplites salmoides*, produced adults which were virtually indistinguishable. That these types are not geographic races is now proved by their being found in the same collections. The cercarial types representing *P. catenaria* Smith, and *P. hedgesiana* Smith thus cannot be separated from *P. macrostoma*. The recognition of species on the basis of differences in cercarial type is discussed. N.G.S.

(55d) Wisseman gives a detailed description of the cysticeroid of *Raillietina cesticillus* collected from the body cavities of ground beetles. Development may begin as early as 12 hours after ingestion. The larvae are active, grow and develop a cavity as described by Wetzel: the embryonic hooks disappear. Elongation occurs and the head and rostellum are delimited by constrictions while the position of the suckers is marked off. Rostellar hooks appear to develop early. The scolex is marked off from the inner cyst wall and the original cavity becomes filled with parenchyma. P.A.C.

56—Transactions of the Royal Society of Tropical Medicine and Hygiene.

- a. GARRATT, E. I., 1945.—"Clinical filariasis due to *Acanthocheilonema (Filaria) perstans*." 38 (4), 287-290.
- b. STEPHENSON, R. W., 1945.—"Treatment of bilharziasis with stilbamidine." [Correspondence.] 38 (4), 306-308.

(56a) Clinical reports are given of two cases in which severe upper abdominal pain was associated with marked infestation of the liver with larvae of *Acanthocheilonema perstans*. R.T.L.

(56b) Tests on 9 cases of *Schistosoma haematobium* show that stilbamidine is too uncertain to justify its use as a routine treatment. R.T.L.

57—Tropical Medicine News.

- a. PALMER, E. D., 1945.—"Helminthiasis in immigrant Jamaicans." 2 (2), 15-16.

(57a) Stools of 8 young adult male Jamaicans recently immigrated to New York were examined with the following results: Trichuris, 5 cases; hookworm, 4 cases; Ascaris, 1 case; Taenia sp., 1 case. J.J.C.B.

58—United States Naval Medical Bulletin.

- a. BYRD, E. E., ST. AMANT, L. S. & BROMBERG, L., 1945.—“Studies on filariasis in the Samoan area.” 44 (1), 1–20.
- b. GLAUSER, F., 1945.—“Filariasis in returning marines.” 44 (1), 21–26.
- c. ZUCKERMAN, S. S. & HIBBARD, J. S., 1945.—“Clinicopathologic study of early filariasis; with lymph node biopsies.” 44 (1), 27–36.
- d. MARKELL, E. K., 1945.—“Intestinal parasitic infections in a naval hospital in New Zealand.” 44 (1), 65–68.

(58a) *Aedes scutellaris* var. *pseudoscutellaris* is the only established vector of *Filaria* in the Samoan area. More than 9% of this species were found naturally infected. *Culex quinquefasciatus* does not produce infective larvae although susceptible to infection with the early stages. As *Aedes scutellaris* var. *pseudoscutellaris* has a very short flight range, troops and natives should never be quartered within the same area. A distance of 500 yards should separate camps from the nearest native habitation, or where this is impossible camps should be placed to the windward of the native habitations. As the mosquitoes are day biting, troops should never be allowed within native villages during daylight hours, unless fully dressed and supplied with repellants. Grass, vines and underbrush should be removed for at least 100 yards beyond the occupied area.

R.T.L.

(58b) No constancy could be observed in the incubation period, mode or time of onset, or in the part of the body attacked in 172 marines who had acquired filarial affections while serving in the Samoan Islands. No method of treatment afforded lasting relief although temporary relief followed rest.

R.T.L.

(58c) Hyperplasia of the reticulo-endothelial system accompanies infection with *Wuchereria bancrofti*. The endothelium of the lymph channels is similarly affected resulting in an obliterative endolymphangitis. Eosinophilia is due to the presence of an adult, and usually dying, parasite. No evidence was obtained that bacterial infection caused the lymphangitis in the cases observed. Sulphonamide therapy was not effective.

R.T.L.

(58d) The patients reported upon in this paper were U.S. Navy and Marine Corps personnel who had served for varying periods in the South Pacific area. Hookworm infections were found commonly in men from the Northern States of U.S.A. who had had no residence in endemic areas prior to being drafted overseas.

R.T.L.

59—Veterinary Medicine.

- a. RAY, J. D., 1945.—“Enteritis and mixed infections in swine.” 40 (2), 48–54.
- b. DASHOFF, A. D. & NOVY, V. J., 1945.—“Dirofilariasis with paraplegia and its treatment.” 40 (2), 69–70.
- c. EVELETH, D. F. & GOLDSBY, A. I., 1945.—“The gastrointestinal parasites of sheep in North Dakota.” 40 (3), 90–96.

(59c) In the Northern Plains of Dakota there has been a progressive decline in the quality of marketed lambs due to malnutrition and parasitism. Many have discontinued the use of phenothiazine and salt because of its failure to control *Ostertagia*, *Nematodirus*, and *Trichostrongylus*. Various combinations of anthelmintics have been tested by Eveleth & Goldsby in order to find one relatively safe for use under farm conditions and the following mixture (in parts by weight) has been found to be quite lethal for the five parasites common in sheep. Copper sulphate 54, sodium arsenate 26, ammonium carbonate 20, sodium bicarbonate 675, phenothiazine 450, gelatin (ground) 15, nicotine sulphate (40% solution) 20. The mixing of this alkaline anthelmintic with grain saves labour and, for sheep being grain fed, 1 to 1½ oz. of the dry powder per ewe or ½ to ¾ oz. per lamb is mixed with a single feed of grain slightly moistened with water and this is repeated a week later. Most sheep readily eat the mixture. As a drench 2 lb. 14 oz. of the powder is mixed with sufficient water to make one gallon. The dose by stomach tube is 1 c.c. per lb. weight of sheep, but if given by drenching bottle this dose should be reduced by ¼th.

R.T.L.

60—Veterinary Record.

- a. TAYLOR, H., 1945.—“Worm infestation in a foal.” 57 (1), 8.
- b. NATIONAL VETERINARY MEDICAL ASSOCIATION, 1945.—“Report on diseases of farm livestock. Section III: Parasitic diseases of bovines.” 57 (6), 57-65; (7), 73-79; (8), 85-91.
- c. McCLEERY, E. F., 1945.—“Echinococcosis.” [Correspondence.] 57 (17), 206-207.
- d. O’SULLIVAN, K., 1945.—“Echinococcosis.” [Correspondence.] 57 (21), 258.
- e. MATHESON, D. C., 1945.—“Echinococcosis.” [Correspondence.] 57 (28), 343-344.
- f. PIERSON, E., 1945.—“Echinococcosis.” [Correspondence.] 57 (30), 363-364.
- g. WADDINGTON, F. G., 1945.—“Coronary thrombosis and sudden death in an Ayrshire bull.” 57 (31), 366.

(60c) An unusually heavy infection of *Echinococcus* in an English cow is reported. The liver weighed 85 lb. out of a total dressed carcase weight of 365 lb. There was practically no liver tissue left. Cysts also occurred in the lungs. R.I.L.

(60g) Waddington describes myocardial infestation with *Cysticercus bovis* in an Ayrshire bull in Kenya. The infestation had apparently induced damage to the coronary artery during the passage to the myocardium and a thrombus had formed on the damaged surface. P.A.C.

